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Washington, D.C.

Implementation of Section 17 of the Cable Television Consumer Protection and Competition Act of 1992

Compatibility Between Cable Systems and Consumer Electronics Equipment

ET Docket No. 93-7

COMMENTS OF CABLEVISION INDUSTRIES CORPORATION

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SUMMARY

In these comments, Cablevision Industries Corporation ("CVI") addresses several specific aspects of the Commission's Notice of Proposed Rulemaking on equipment compatibility:

Remote controls. The Commission's proposal that cable operators identify for subscribers the model numbers of remote control devices that are compatible with equipment used in their systems, as well retailers in the area where such devices can be purchased, is impractical and unreasonable. Cable operators cannot reasonably be expected to locate and test the hundreds of different remote control devices on the market or to identify every retailer of compatible devices. Instead, operators should be required to inform subscribers of the manufacturer and model number of any system-provided converter or descrambler equipment in use by each system. This will provide sufficient information to enable subscribers to obtain remote control devices that are compatible with their systems' equipment.

Cable Ready equipment. CVI supports the Commission's proposal to impose compatibility requirements on all television sets and video cassette recorders that are intended to be connected to cable systems. CVI also supports the proposed decoder interface approach to ensuring compatibility, although some changes will need to be made to the EIA/ANSI-563 standard to take into account recent enhancements in decoder and consumer electronics technology.

Upper tuning limit. In order to accommodate the full range of frequencies likely to be used by cable systems, analog TV receivers and VCRs that are intended

to be connected to cable systems should be required to tune frequencies up to 750 MHz. Devices with analog/digital or HDTV capability should, however, have a required upper limit of 1 GHz, because such frequencies are likely to be used by cable systems to carry compressed NTSC and HDTV signals.

Direct pick up. The Commission's standards for minimizing direct pick up interference should take into account the significant interference that is caused by land mobile transmitters, in addition to the interference caused by television broadcast stations. Evidence supplied by CVI supports using a 250 mV/m field intensity as the appropriate criterion.

Conducted emissions. Evidence supplied by CVI indicates that the Commission's proposed standard of -37 dBmV for emissions conducted onto a cable system may, in some circumstances, be more stringent than necessary. That standard should be applied to equipment using single conversion tuners. But for equipment using double conversion tuners, the Commission should adopt the less stringent standards recommended by the NCTA/EIA Joint Engineering Committee.

Equipment charges. As noted above, CVI supports the Commission's proposal to require that all receiving equipment intended for connection to cable systems be equipped with decoder interfaces and that cable operators provide component decoders to all subscribers with interface-equipped receivers. But CVI opposes the requirement that such decoders be provided at no charge. Such a requirement is at odds with the rate regulation provisions of the Cable Act, would make it unduly burdensome for cable operators to recover the costs of such decoders

by requiring them to undertake costly and time-consuming cost-of-service showings, and would be inequitable to cable subscribers by forcing subscribers with set-top converters to subsidize the costs of component decoders provided to subscribers with newer TV sets and VCRs.

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COMMENTS OF CABLEVISION INDUSTRIES CORPORATION

INTRODUCTION

Cablevision Industries Corporation ("CVI") hereby submits its comments in the above-captioned proceeding. CVI is the eighth largest cable operator in the United States, with operations in 18 states and approximately 1.3 million subscribers. CVI installation and service personnel visit between 300,000 and 500,000 homes each year in the course of conducting business, and CVI is therefore intimately familiar with, interested in, and affected by the equipment compatibility matters at issue in this proceeding.

I. Remote Controls.

In its effort to improve compatibility of existing equipment, the Commission proposes that cable operators bear the responsibility of identifying model numbers of compatible remote controls and "local area" sources where subscribers could purchase such units. CVI supports the notion that operators help to educate consumers on the availability of compatible equipment; the particulars of this proposal, however, are untenable. Under the proposal, the Commission appears to make cable operators responsible for determining which products are actually compatible with cable converters and descramblers. Unless the Commission expects to require cable operators to use system converters and converter/descramblers to test the compatibility of what could potentially be hundreds or even thousands of different models of remote controls, a more practical approach is needed.^{1/}

Specifically, CVI recommends that the Commission adopt rules that would require each cable system to maintain lists of converter and descrambler manufacturers and model numbers for all types of units used in the system.

^{1/} Requiring operators to determine compatibility would necessitate burdensome testing. Even if operators are permitted to rely upon manufacturer-supplied information, the inadvertent omission of new models could prove problematic. In some instances, moreover, operators may feel particularly uncomfortable relying upon information being provided by equipment providers with whom the operator has no familiarity. It should be noted, moreover, that Congress did not suggest so onerous a burden be placed on operators. To the contrary, the statutory provision directs that operators identify "types" of compatible units. 47 U.S.C. § 544a (c)(2)(D)(ii). Finally, although not commonplace, there are situations where a remote unit that is fully compatible with the cable system converter box will not work with a particular television receiver.

Customers would be notified at the time of initial service activation and annually thereafter of models of converters used in the system. This information could be used by subscribers to purchase a compatible remote control.

Similarly, the Commission's proposal to require cable operators to locate and notify customers of sources for remote control units in the local area is unfair to both cable operators and dealers and may be of little help to subscribers. "Universal remotes," for example, are available from a wide variety of sources ranging from TV and stereo dealers to grocery stores, drug stores, hardware stores and discount department stores. Many units are available nationwide by mail order. It makes no sense to burden cable operators with developing huge lists of retailers selling remote units, especially in metropolitan areas where there could be thousands of such dealers. Unless the list is all inclusive, dealers not making the list will be disenfranchised. In the past, many cable franchises prohibited cable operators from naming or endorsing specific models and dealers.

CVI therefore recommends that the Commission require operators to inform subscribers of the manufacturer's name and model number for any system-provided converter or descrambler in use. Armed with this information, customers would be able to choose compatible remote controls from the dealers of their choice.

II. Cable Ready Equipment.

The Commission's proposal to require that all consumer electronics equipment connected to cable comply with minimum standards will protect consumers from

purchasing equipment with inadequate performance characteristics. CVI has often found it necessary to install converter boxes simply to rectify such problems as inadequate tuner shielding. Equipment compatibility will not be achieved where consumers unwittingly purchase equipment that tunes cable channels,^{2/} but will not perform satisfactorily when connected to a cable system.

CVI also supports the Commission's proposal defining a Decoder Interface connector for mating with component descramblers/decoders. By requiring both TV receivers and VCR's to have the connector, the Commission will ensure that all features of the TV or VCR, including the remote control, remain fully functional.^{3/} Consumer electronics products equipped with decoder interface connectors would be compatible with existing addressable security systems. CVI believes, however, that

^{2/} This includes any channel except 2-13 as defined in IS-6, EIA Draft Standard Cable Television Identification Plan, to be published as EIA-542 after approval.

^{3/} EIA/ANSI-563, "Standard Baseband (Audio/Video) Interface Between NTSC Television Receiving Devices and Peripheral Devices" has existed as a standard for about four years and as an interim standard (IS-15) for about four years before that. It promised to solve most cable/consumer electronics interface problems. Since it was first introduced in 1989, approximately one million TV receivers have been manufactured and introduced into the market. Receivers from RCA, General Electric, Panasonic, Quasar, Bang & Olufsen, Curtis-Mathes and JCPenney have been mated with cable descrambling devices produced by Jerrold and Zenith. While cooperative efforts between cable operators and consumer electronics manufacturers and retailers created success stories from satisfied cable subscribers being able to use all features of their equipment, the standard was never fully supported by either the cable or consumer electronics industries. Most problematic was that only a few of the sets could be located after they were sold. Only a small percentage of consumers purchasing sets at retail stores return the warranty cards so that neither set manufacturers or cable operators are aware of set locations. That would not be the case where the Commission's proposed standards are applied to all consumer electronics products intended to be connected to cable.

important changes and enhancements need to be made to the EIA/ANSI-563 standard if true compatibility is to be achieved.

Specifically, set-top technology has evolved significantly since development of the EIA/ANSI-563 standard, and set-top converters now incorporate enhancements that need also to be incorporated into decoder interfaces and converters. For example, CVI uses features of its set top technology to simplify Pay Per View (PPV) ordering. Most of CVI's 400,000 addressable customers can order PPV events using Automatic Number Identification (ANI) technology. Using this system, subscribers tune to an "instruction" or "preview" channel to see previews of pending events and ordering instructions. They are instructed to dial an 800- phone number corresponding to the event they are ordering. With this system subscribers can order events in advance of their scheduled airing for later viewing or recording. Once the event is ordered, the converter/descrambler is "force tuned" by the cable headend controller to the channel of the event ordered.

With force tuning, each PPV event is tagged by the event scheduler with a unique program tag. If the program tag stored in the decoder by the controller when the event was ordered matches the tag of the program in progress on the assigned PPV channel, the channel can be viewed. If the tag does not match, as when a subscriber has pre-ordered an event, the converter/descrambler is tuned back to the preview channel. Once a pending event is pre-ordered, the decoder periodically tunes (usually at one minute intervals) to the event channel and checks for a program tag that matches the stored authorization tag. If the tags match, the converter remains

tuned to that channel, if not, it returns to a "base" channel. This process occurs very rapidly and is virtually transparent to viewers.

CVI also uses converters with store and forward two-way technology or Impulse Pay Per View (IPPV) ordering capability in Cape Coral, Florida; Chatsworth, California; Philadelphia, Pennsylvania; and Foxboro, Massachusetts. Using this technology, CVI "downloads credit" into subscribers' decoders. Viewers can then order IPPV events using their converter remote control devices to draw down from stored credits. This system eliminates the need for customers to dial special phone numbers to order events as is the case with ANI fulfillment systems. To be fully compatible, therefore, the proposed decoder interface standard needs to include a means to permit component decoders to receive commands from the host's infrared ("IR") remote control receiver and access these kinds of tuning circuitry in the host equipment.

CVI has also begun purchasing decoders that incorporate on-screen display features. These units display channel names (e.g., ESPN, CNN, ABC, etc.) as well as numbers on the display screen to aid viewers in locating channels. Viewers can access menus that list all channels by name. When a viewer positions a pointer next to a service name and presses ENTER, the unit is tuned automatically to that service. Beginning in late 1994, full electronic program guides will be available for selecting specific programs. As the number of channels available to viewers increases, the necessity of providing "tuning aids" becomes an essential element in the delivery system. They also include text generation capability to alert viewers of impending

events on cable and in the community. This messaging or text capability can be sent to individuals, groups of individuals or all subscribers. On-screen display decoders also include features that make ordering PPV and IPPV events easier using text capability to instruct customers on how to order events. If the proposed decoder interface also defines a standard for accessing a host's internal graphic and text display circuitry, the necessity of duplicating the circuitry in the component decoder would be reduced or eliminated.

Thus, while CVI supports a decoder interface standard, we recommend that changes be made to the EIA/ANSI-563 standard to make it comport with changes in decoder and consumer electronics (e.g., tele-captioning decoders) technology that have become commonplace since the standard was developed. While the original standard contains provisions for passing predefined signals from the TV set's or VCR's remote control receiver to the connected decoder, it does not include the capability to force tune consumer electronics equipment or access any existing on-screen display capability within TV sets and VCR's. When force tune capability is combined with pre-defined commands from the host's IR remote control receiver, users of component decoders will have the same IPPV ordering capability as users of set top decoders. If the TV receiver or VCR has text and graphic generation capability, making that capability available at the decoder interface will reduce or eliminate the need to duplicate text generation capability in component descramblers. CVI recommends that the Commission recognize and support the ongoing efforts of the EIA/NCTA Joint Engineering Committee to modify the decoder interface standard

to permit such functionalities as IR command codes for component decoders, force tuning of the host's tuner, and access to host on-screen text and graphic generation capability.

III. Upper Tuning Limit.

The cable industry has steadily pushed the upper frequency limit of cable systems over time. In the early 1970's, 300 MHz systems were being built; in the early 1980's the limit moved to 400 MHz and in the early 1990's it has moved to 550 MHz and 750 MHz. The average TV receiver operates more than 12 years before replacement. It is expected that cable systems will continue to push the upper frequency limit towards 1 GHz and that receivers purchased now and in the near future might eventually be connected to cable systems with upper frequency limits of 1 GHz.

Systems constructed for 550 MHz operation are designed to carry approximately 77 NTSC television channels. Systems designed for 750 MHz operation are also often designed to carry 77 NTSC television channels, with the remaining 200 MHz of capacity being reserved for carriage of compressed NTSC and/or HDTV signals. It is expected that encoding and modulation efficiencies will reduce the channel loading on cable systems carrying compressed and HDTV signals. Therefore 750 MHz systems are designed for carriage of signals at reduced amplitude from 550 to 750 MHz. As the carriage of compressed NTSC and HDTV signals saturate cable system capacity, the upper frequency limit will be raised to 1 GHz. As

the upper frequency limit moves up, the spectrum from 550 to 750 MHz may be used for analog NTSC signals, with the new frequencies from 750 to 1000 MHz to be used for compressed NTSC and HDTV signals. CVI recommends setting the upper frequency limit at 750 MHz for analog TV receivers and VCR's. But consumer electronics devices with analog/digital or HDTV capability should be required to tune 1 GHz if they are not to become obsolete before their useful life is over.

IV. Direct Pick Up.

DPU in consumer electronics equipment has been a problem for the cable industry. Converters were first employed to eliminate the effects of DPU, and the first patent issued for converters addressed precisely that problem. The cable industry has historically solved DPU problems by providing subscribers with converters. DPU has two principal sources — nearby TV stations and land mobile and paging transmitters. DPU from TV stations is relatively constant and can be characterized. DPU from land mobile and paging transmitters is transient and is almost impossible to characterize.

Included as Attachment A is field intensity data measured in five communities. Measurements were made outdoors using standard gain dipoles. The field intensity was greater than 250 mV/m in 19% of the samples and was greater than 100 mV/m in 85% of the samples. In each of the cities, except Pittsburg, California, transmitters are located within or very near the city so there are significant population concentrations near the transmitter. Similar situations are encountered in many major

cities. In addition to the cities listed in Attachment A, examples include New York, Chicago, Boston, Los Angeles, Cincinnati and Portland, OR. CVI recognizes that some additional signal attenuation will be expected due to structural shielding, but no attempt has been made to quantify the magnitude of the attenuation. None of the CVI data includes measurements made on UHF stations. Interference from UHF stations can be expected to be more problematical as the number of systems using channels in excess of 470 MHz (the lower limit of the UHF band) increases. Field intensities from UHF stations tend to be higher than VHF stations, and perceptibility of the interference will be greater. UHF channel assignments are off-set from cable channel assignments by 2 MHz, so the resulting interference will be a 2 MHz beat.

Interference of this type has a lower threshold of visibility than interference that appears as images offset in time or ghosts. CVI recommends that the Commission, in adopting standards, should recognize the existence of interference from land mobile transmitters as well as from TV broadcast stations and that the evidence supports using a 250 mV/m field intensity as the criterion for minimizing DPU interference.

V. Conducted Emissions.

The Commission's proposed standard of -37 dBmV for emissions conducted onto a cable system may be more stringent than necessary under certain circumstances. Cable converters use double conversion tuners that have local oscillators above the upper frequency limit of the cable system in which they are used. One manufacturer of cable converters has a specification of 0 dBmV for the

level of the local oscillator at the input connector. CVI conducted laboratory tests on products from that manufacturer that are capable of tuning channels up to 550 MHz. The age of the tested products ranged from new to more than five years old. The table included in Attachment B shows the worst case level and frequency of the local oscillator at the input connector. The table also indicates the converter channel at which the worst case level occurred.

While the level of the local oscillator exceeds the proposed standard by a wide margin, it should be noted that all levels were above the highest channel of the 550 MHz converters, and all but one were above 800 MHz. It should also be noted that when double conversion tuners are used, the frequency of the local oscillator is always above the highest frequency to be tuned. When single conversion tuners are used, the local oscillator is typically 45.75 MHz above the tuned channel. CVI proposes that the Commission adopt the higher standard of -37 dBmV for equipment using single conversion tuners. For equipment using double conversion tuners, CVI supports the recommendations of the NCTA/EIA Joint Engineering Committee in "RF INTERFACE SPECIFICATION FOR TELEVISION RECEIVING DEVICES AND CABLE TELEVISION SYSTEMS."

VI. Equipment Charges.

The Notice proposes that cable operators be prohibited from imposing separate fees for the lease or installation of component decoders. CVI does not believe the prohibition is warranted. CVI believes that the Advisory Group proposal regarding

free installation for the first component decoder per home, coupled with anticipated savings in lower monthly equipment fees, provides significant benefits. Charges for component decoder units are expected to be significantly lower than existing rates for converter boxes. In addition, there will be no need for subscribers to buy or lease remote control units. With these potential savings and the cable industry's proposal to offer free installation of the first component decoder, subscribers will have a meaningful inducement to purchase CATV compatible television sets and video cassette recorders.

CVI supports the Advisory Group proposal that cable operators be able to charge for the use of decoders as well as for additional installation fees. Permitting cable operators to separately charge for these items enables cable operators to recoup their investment in the new equipment without burdening subscribers who have not invested in new cable-ready receivers and VCRs. As noted above, because the new units are expected to be much less expensive than today's converters, subscriber monthly equipment fees will be lower. In addition, subscribers will save on remote control charges as the use of component decoders will remove the need for them.

The Notice proposes that installation and rental of component decoders be included as "elements of a general cable network." This proposal is at odds with the statutory directive that cable operators separately charge, on the basis of actual costs, for equipment used to receive basic programming. To deny cable operators the opportunity to recover the cost of component decoders places a burden on cable operators in clear contravention of the Commission's rate regulation rules. Nor

would such an approach generally benefit subscribers. To the contrary, service to subscribers that have not yet purchased new equipment would be burdened by the cable operator's investment for the new equipment. Likewise, significant inequities would arise as to a cable operator's costs to accommodate component descramblers for subscribers who have purchased one new receiver as compared to the costs attributable to subscribers with additional outlets and multiple cable-ready receivers and VCRs. Conversely, if they are to be precluded from separately charging for this new equipment, cable operators will be forced into lengthy and costly cost-of-service proceedings. And the need for such proceedings will increase as more subscribers purchase cable-ready equipment.

The rate regulation provisions of Section 3 do not indicate in any manner whatsoever that cable operators are to absorb the costs of equipment compatibility. To force cable operators to recover new equipment costs as part of overall network costs will, sooner or later, translate into spreading such costs via increased cable service rates. This seems clearly at odds with Congressional intent. It would result in a forced subsidization for those who have purchased cable compatible televisions by those subscribers who have not.

CONCLUSION

CVI supports the Commission's efforts in implementing Section 17 of the Cable Act and submits the foregoing comments in support of its efforts to provide

consumers with cable and consumer electronics equipment that improves the quality of the programming delivered to subscribers.

Respectfully submitted,

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ATTACHMENT A

RESULTS OF FIELD INTENSITY MEASUREMENTS IN SELECTED CITIES

TABLE I
SAN FRANCISCO, CALIFORNIA

Distance to Transmitter (Miles)	Ch 2 (mV/m)	Ch 4 (mV/m)	Ch 5 (mV/m)	Ch 7 (mV/m)	Ch 9 (mV/m)
0.9	102	507	412	417	221
1.4	168	465	265	1188	1084
2.7	129	160	73	131	157

TABLE II
MILWAUKEE, WISCONSIN

Distance to Transmitter (Miles)	Ch 4 (mV/m)	Ch 6 (mV/m)	Ch 10 (mV/m)	Ch 12 (mV/m)
0.3	804	1380	363	NA
0.5	NA	NA	NA	243
2.0	285	155	543	216
4.0	80	78	129	43
8.0	24	35	229	NA
16.0	6	8	32	34

TABLE III
NASHVILLE, TENNESSEE

Distance to Transmitter (Miles)	Ch 2 (mV/m)	Ch 4 (mV/m)	Ch 5 (mV/m)	Ch 8 (mV/m)
1.0	229	254	232	170
2.0	324	227	164	214
3.0	229	202	130	339
4.0	129	143	184	191
5.0	41	101	116	21

TABLE IV
SEATTLE, WASHINGTON

Distance to Transmitter (Miles)	Ch 4 (mV/m)	Ch 5 (mV/m)	Ch 7 (mV/m)	Ch 9 (mV/m)	Ch 11 (mV/m)
7	277	232	234	221	661
13	227	184	166	140	525

TABLE V
PITTSBURG, CALIFORNIA

Distance to Transmitter (Miles)	Ch 3 (mV/m)	Ch 6 (mV/m)	Ch 10 (mV/m)	Ch 13 (mV/m)
25	7	10	51	45
27	6	8	32	28

ATTACHMENT B

LEVEL OF LOCAL OSCILLATOR AT INPUT PORT
OF SAMPLE 550 MHz CONVERTERS

SAMPLE NUMBER	TUNED CHANNEL	LO FREQUENCY (MHz)	LO LEVEL (dBmV)
1	59	1000	-14
2	61	814	-21
3	36	994	-21
4	35	988	-8
5	30	958	-7
6	3	611	-19
7	69	995	-24
8	28	946	-4